REMARKS

The present invention relates to a method for distance measurement in which an electromagnetic pulse is transmitted by a transmitter and the return echo pulse, including any noise, is detected by a receiver. The noise is measured using the receiver at specific points in time which are determined at least by one threshold of the receiver which lies in the noise.

A plurality of electromagnetic pulses are transmitted by the transmitter and averaging the points in time at which the threshold of the receiver is exceeded and points in time at which the threshold of the receiver has fallen below. The average value is then integrated into an amplitude function. A detection threshold is then applied to the amplitude function to detect changes of noise caused by the signal pulses and in which the respective associated object for which the distance is determined in the amplitude function is for the signal pulses on the basis of at least one point in time at which the detection threshold is passed through.

New claim 65 incorporates the limitations of claims 33, 36, 37, 43, 44, 46 and 47 in the published patent application. New claim 66 is essentially the same as claim 65 except that the evaluation of the signal passing through the threshold is reversed. Although the claim speaks for itself, the key to Applicant's invention lies in the last three paragraphs of claim 65 or 66. More specifically, the integration process together with the so-called amplitude function is best described in paragraphs [0110] and [0115]-[0118] of the A1 publication. Please also see paragraph [0122] of the A1 publication. As is clear from this portion of the A1 publication, the method of the present invention utilizes the fact that the signal 15 (see FIGS. 5a-5f) to be detected causes a shift of the analog measurement 37 into the positive rather than the pure noise measurement. This shift in turn leads to the effect that the signal shows up in the amplitude function as a signal which can be detected by applying to the amplitude function a detection threshold 31 as best shown in FIG. 5f.

A primary advantage of Applicant's invention is that the calculations performed by the device are simple and – in a mathematical sense – equivalent to forming an amplitude function and applying that amplitude function to a threshold, this being done by a software running in the device, i.e. the amplitude function is a "software function" and the threshold is a "software threshold".

The prior art cited by the Patent Examiner neither teaches nor renders obvious Applicant's invention as it is now defined in the claims. More specifically, although the prior art clearly discloses methods and apparatus which use elapsed time from the transmission of the pulse and to the reception of its echo, none of them teach or suggest Applicant's invention in which multiple pulses are transmitted and received such that the echo is in the noise level, then creating the software amplitude function and then applying the detection threshold 31 to that function. Consequently, Applicant respectfully submits that new claims 65 and 66, together with their dependent claims, patentably define Applicant's invention over the prior art of record and are, therefore, allowable. Such action is respectfully solicited.
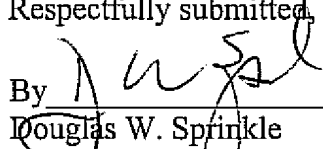
The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 07-1180.

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Respectfully submitted,

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